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The Cost of Innovation:

Navigating the Ethical Responsibilities of Technological Advancements and Societal Change for Inclusive, Sustainable Development in a Globalised World

[General Assembly]

[Addressing the impacts of water pollution in areas of high flood risk]

Committee: General Assembly

Issue: Addressing the impacts of water pollution in areas of high flood risk

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INTRODUCTION

Water pollution in areas of high flood risk is an increasingly pressing global concern. In many regions frequent and severe flooding carries pollutants such as industrial waste, untreated sewage, plastics and many other hazardous materials into water bodies. Overtime as these floodwaters accumulate and spread (particularly in areas which may have insufficient waste management or infrastructures) they begin to contaminate water supplies, damage ecosystem and aquatic life and heighten the risk of waterborne diseases. This therefore threatens public health, damages biodiversity, undermines food security as well as economic stability in countries that are gradually developing their economy.

Climate change has also intensified and impacted these challenges. As recognised by the Paris Agreement, the rise in global temperatures has also contributed to the rise in sea levels and intense rainfall events. Consequently floods have therefore become more severe, increasing the likelihood of a widespread of contaminated waters. In other cases environmental degradation such as deforestation further reduces natural flood mitigation capacity , worsening both flooding and pollution outcomes.

This issue intersects directly with the United Nations 2030 agenda for Sustainable Development, particularly goal 6 which looks at clean water and sanitation. Addressing water pollution in high risk flood zones is therefore not only an environmental issue but also a matter of sustainable development, disaster risk reduction and human security.

DEFINITION OF KEY TERMS

- **Water Pollution -** This refers to the contamination of water bodies such as rivers and lakes by harmful or hazardous substances that can degrade water quality therefore making it unsafe for human consumption and the general environment .
- **Flood Risk -** This is the likelihood of flooding occurring in a particular region or area with potentially catastrophic impacts.
- **Waterborne Diseases -** These are illnesses that are caused by and transmitted through contaminated water .
- **Disaster Risk Reduction -** This involves the strategies and measure which aim towards minimising vulnerabilities and disaster risks to prevent adverse impacts, in this case water pollution.
- **Climate Change -** This refers to the long term shifts in global temperatures and weather patterns.
- **Integrated Water Resource Management. -** This is simply a coordinated approach to managing water, land and other resources in a way that balances economic, social and environmental needs.

BACKGROUND ON THE ISSUE

When and Where this issue began

Water pollution has existed for many years, from the onset of large scale , urbanization and industrialization during the 18th and 19th century. A prime example of this is during the Industrial Revolution where a significant turning point arose when factories began discharging untreated waste into rivers and streams. Furthermore, rapid population growth in urban centers further overwhelmed sanitation systems leading to the contamination of of water supplies and a widespread of diseases.

The relationship between flooding and pollution became more pronounced in river basin regions such as Europe, Asia and North America where industrial activity and settlements were concentrated near waterways. However, this issue gained global recognition in the 20th century as urbanization has expanded,

including agricultural production and as industrial production increases worldwide.

How it has developed overtime

Overtime water pollution in flood prone areas has gradually evolved in both scale and complexity. Somewhere between the mid 20th century industrial chemical discharge and and oil spills were a primary concern. However, in more recent decades this problem has expanded to include plastic wastes, agricultural run off containing fertilizers and pesticides including sewage overflow from wastewater systems.

Climate change has also significantly intensified this problem as recognised under the Paris Agreement, as rising global temperatures contribute to more extreme weather patterns like heavier rainfall and stronger storms. These conditions are what increase flood frequency which in turn amplifies the spread of pollutants across water, land and other geographical areas. Therefore urbanization without appropriate or adequate drainage systems leads to further worsened situations particularly in low income and developing regions.

Furthermore, the issue has unfortunately escalated in recent years as scientific data indicates an increase in extreme weather events, including floods across multiple regions. Sea level rise has placed costal cities at higher flood risk leaving some inland river systems to experience more unpredictable and intense rainfall patterns. Although at the same time, population growth in floodplains has also increased the number of people who are now exposed to contaminated water during disasters, of which this water may come as the only source of water available for the population. However, some developed countries have stern and developed environmental regulations and wastewater treatment systems. This isn’t the same for developing countries which do still continue to

struggle with inadequate infrastructure. As a result global exposure to polluted floodwaters remains a serious and growing concern.

The affected

Who

- Residents of flood prone urban and rural areas
- Informal settlement populations
- Farmers
- Children, elderly people and individuals with compromised immune systems
- Governments and local authorities responsible for public health

How

- Exposure to contaminated water leads to outbreaks of waterborne diseases and pollution to water
- Agricultural land becomes polluted which affects crops and livestock therefore contaminating food supplies
- Fisheries suffer from ecosystem degradation and the degradation of aquatic life
- Economic productivity declines due to the infrastructures being damaged and the increase in healthcare costs
- Vulnerable populations in low income countries are disproportionately impacted due to limited access to sanitation services and healthcare.

CURRENT CONTEXT

The impacts of water pollution in high flood risk areas are intensifying globally, driven by a combination of extreme weather events, climate change and the gaps in water and sanitation infrastructures. In the past years multiple regions have experienced severe flooding that has not only displaced and erased many people but also heightened contamination of drinking water sources and increasing the number of spreading diseases.

In some recent developments and events, Southerb Africa has endured unusually heavy rainfall and successive tropical cyclones, leading to widespread flooding across nations such as Zimbabwe, Malawi, Mozambique, South Africa and Zambia. As of early 2026 there has been an estimate of 1.3 million people who have been affected and 170,00 displaced due to the occurrence of floods that have damaged homes, infrastructures, water supply and sanitation including services.(La Niña flooding article by climate brief)

Public health officials report that damage to water and sanitation infrastructure has significantly increased the risk of waterborne diseases and for the at matter, “cholera cases in the region have surged more than seven fold in early 2026 compared with the same period in 2025”. This is largely due to contaminated water supplies among displaced and vulnerable populations.

Flooding and infrastructure damage in Mozambique during 2025 and early 2026 rainy season had floods which affected more than 860,000 people therefore displacing them as a result of the damage caused to their homes, infrastructures including roads and water systems. This left challenges to the community and began a challenged efforts to provide safe water and sanitation services for the people.

Reports from global weather agencies suggest that the changes in the hydrological cycle are contributing to more frequent and intense flooding in many regions. Therefore these event overwhelm t he existing water management systems. Furthermore, beyond Southern Africa, numerous parts of the world have experienced this in the past years, this includes Southeast Asia, South Asia and Australia. For example extensive flooding in Vietnam in late 2025 which affected large river basins.

MAJOR COUNTRIES AND ORGANIZATION INVOLVED

This issue involves a range of emitters, actors and affected states all contributing to climate change to international organizations coordinating developments and other solutions to combat the issue.

Countries

Bangladesh: It is located in the Ganges- Brahmaputra Delta and it faces frequent monsoon flooding. Floodwaters often mix with industrial discharge and agricultural waste including urban waste. Millions of the locals have been affected and exposed to flood related water contamination, contaminating the drinking water and health. Though Bangladesh has some industrial sector that a growing, it still remains at a low radiator and emitter globally even though the rapid increase in urbanization and textile industry continue to discharge and contribute to water pollution. Now, the country has been investing in flood shelters, river embankments and improved and improved drainage systems so as to attempt disaster risk reduction measures.

United States of America: The US has experienced significant flood events, particularly in coastal areas and along major river systems. Industrial zones and degraded infrastructure can lead to sewage overflows during strong weather conditions. In the past the country has been affected by hurricanes and heavy rainfall events which have lead to the contamination of drinking water and the spilling of toxic chemical waste. As one of the worlds largest historical greenhouse gas emitters, the US has contributed to global climate change which is what intensifies and increases extreme weather patterns. However, it does fortunately have environmental protection regulations in wastewater treatment and infrastructure investments, thus attaining to international climate financial and research initiatives.

Organizations

WHO and UNICEF: The World Health Organisation aids in monitoring outbreaks of diseases linked to the contamination of water hence providing emergency services in response cases during a flooding crisis. As for UNICEF, it does play a similar role os it mainly focus on providing emergency services as well and proving things such as safe water, sanitation and hygiene particularly fir children during flood emergencies. Both organizations have served so as to educate and manufacture infrastructures that aid and support combating this situation that remains affecting people. Placing their humanitarian welfare in priority whilst initiating programs and surveillance systems in vulnerable communities to aid their economy and well-being.

World Bank: It has provided financial aid for climate resilience projects, flood management systems and wastewater treatment infrastructures in LEDCs and developing countries. Though they have not contributed heavily to the issue, some past developmental projects have pressed on environmental degradation. Moreover, the World Bank aids in funding better water treatment infrastructures as well as climate adaptation systems.

TIMELINE OF KEY EVENTS

3-14 June 1992 -United Nations Conference on Environment and Development in Rio de Janeiro- This summit had produced Agenda 21 which stands to integrate water resource management and sustainable development and it also looked at ways in which could formally approach the need to protect water systems from any forms of pollution and environmental degradation.

28 July 2010- UN Resolutions recognising the 'Human Right to Water and Sanitation': The General Assembly had officially acknowledged and recognised the access and provision to clean and sanitation and a basic human right therefore strengthening international accountability aimed towards water contamination during flood or any other disasters.

25 September 2015 Adoption the 2030 Agenda for Sustainable Development: During this time the UN developed the Sustainable Development Goals including SDG6 which targets clean water and sanitation and SDG 13 times at climate change. The end goal for this is to have water resilence as a time bound global priority by 2030.

1 November 2021 Glasgow Climate Pact COP26: This highlights commitment to the goals of the Paris Agreement in particularly limiting global warming and international cooperation. It emphasises on increased climate financial support to vulnerable communities as this is targeted towards flood prone areas with intensified flooding which leads to pollutants and sewage spills spreading.

2024 Global reports indicating 'Rising flood frequency and water stress': Many international agencies reported the increase of extreme rainfall and deteriorating water quality worldwide hence reinforcing about climate driven floodwater contamination.

2030 Deadline for Sustainable Development Goals: Member states are expected to have achieved these by 2030 including access to clean water as well as strengthening means to achieving resilience any flood prone threats and any forms of water pollution.

RELEVANT UN RESOLUTIONS, TREATIES, & EVENTS

In 2010, the General Assembly drafted a resolution (Resolution64/292) which recognised that access to clean water is a basic human right. This strengthened global accountability for protecting water and this is particularly during disasters such as flood disasters.

Furthermore, in 2015 the UN adopted the 2030 agenda, which would thereby establish the sustainable development goal six which focuses on clean water and sanitation as well as the SDG 11 which also looks at sustainable cities and communities all these goals directly address the quality of water and ways in which They can combat disaster resilience from climate related flooding.

Alongside this the US has also launched the decade long initiative to accelerate global action, sustainable water management and this was in March 2018. Followed by the General Assembly resolution on 'Modalities of the 2026 UN Water Conference'. This resolution established "plans and preparations for the 2026 United Nations Water Conference aimed at accelerating implementation of SDG 6"

PREVIOUS ATTEMPT TO SOLVE THE ISSUE

- **International Climate Agreements**

The adoption of the Paris Agreement (2015) made a major global effort to combating greenhouse gas emissions and strengthen climate changes. Addressing the root causes of climate change allowed for for this agreement to indirectly target the increasing concern of floods that contribute to water contamination. However in addition to this, the Glasgow Climate Pact (2021) reinforced adaptation to avail financing for vulnerable states.

- **National Legislation and Environmental Protection Policies**

Countries like the United States for example have implemented environmental protection laws regulating wastewater discharge and stormwater management. Similarly soke flood prone states like Bangladesh have begun to implement community-based flood preparedness systems and embankment projects to attempt in reducing contamination during monsoon seasons.

- **United Nations Water Conferences (2023 & Upcoming 2026)**

"The 2023 UN Water Conference in New York City produced the Water Action Agenda, encouraging voluntary commitments from governments and stakeholders" this was introduced to reduce water pollution and help strengthen resilience in flood-prone areas as well as take some form of initiatives in tackling and finding a means in reducing contamination and high risk flooding.

POSSIBLE SOLUTIONS

1. Flood and pollution monitoring systems which can beset to help promote and instill interpreted monitoring systems that can combine flood weather forecasting as well as water quality testing of which this will include early warning systems to prevent and prepare for disasters.

2. Strengthening international standards on basic water quality and and environmental requirements of which will be made mandatory to have set in place so as to avoid and ensure the safety of the environment and biodiversity of communities. This will come with regular testing and inspection of water after floods to ensure the safety of the environment and avoiding a spread of diseases.

3. Establishing an international financial support system to aid countries which are not able to provide or complete the developments of water safety infrastructures. This will serve the purpose of including and ensuring that every country or flood prone areas are supported and supplied with everything needed to protect them from high risk floodinh.

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